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Standards for maternity care professionals attending planned upright breech births: a Delphi study

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Abstract

Objective: to establish a consensus of opinion on standards of competence for professionals attending upright breech births.

Design: a three-round Delphi e-survey.

Setting: multi-national.

Participants: a panel of thirteen obstetricians, thirteen midwives and two user representatives. Clinicians had attended >20 upright breech births, or >10 upright among >40 total breech births. Mean level of experience = 135 breech births, median = 100 breech births.

Methods: an initial survey contained open-ended questions. Answers were coded and amalgamated to form 164 statements in the second round and 9 further statements in the third round. Panellists were asked to evaluate their agreement with each statement using a 5-point Likert scale. The pre-determined level of consensus was 70% of respondents indicating agreement or strong agreement with the statement.

Results: the panel returned a consensus-level agreement on 63 statements under the theme, 'Standards of Competence.' Panellists supported teaching breech as a 'normal' skill rather than an emergency, including optimal mechanisms and breech-specific progress measures, upright variations of classical manoeuvres, the initiation of resuscitation with the umbilical cord intact, birth videos as learning tools, and the development of breech teams to support the wider team in all maternity care settings.

Conclusions: while every health professional should maintain basic competence to assist unanticipated breech births, establishing enhanced training and standards for those who support planned breech births may help protect users and providers of maternity services, while introducing greater choice and flexibility for women seeking the option of vaginal breech birth.

Keywords: breech presentation; midwifery; obstetrics; training; clinical competence; Delphi

Introduction

Mode of birth for breech presentation (approximately 3-4% at term) remains the subject of much controversy. Vaginal breech birth (VBB) carries a two- to five-fold greater relative risk of short-term morbidity and mortality than caesarean section (CS) (Berhan and Haileamlak, 2015), but long-term outcomes (serious neuro-motor delay or death at 2 years) appear similar when either VBB or CS is planned (Hofmeyr et al., 2015). Despite the unfavourable short-term comparison to CS outcomes, a recent meta-analysis demonstrated that the absolute risk of VBB is lower and more similar overall to cephalic vaginal birth than previously believed, with 0.3% perinatal deaths from 75,193 deliveries (Berhan and Haileamlak, 2015). The further issue of increased risks in future pregnancies due to a scarred uterus means that VBB remains some women's preferred option (Guittier et al., 2011; Homer et al., 2015). It may also be the only option where breech presentation is diagnosed late in labour. As noted by the most recent Cochrane Review on the topic, strategies to reduce the risk of VBB by means other than CS remain important (Hofmeyr et al., 2015).

Another area of controversy concerns the most advantageous position for the mother to adopt when a VBB does occur. On the basis of the majority of providers' experience, the United Kingdom Royal College of Obstetricians and Gynaecologists (RCOG) guidelines currently explicitly recommend lithotomy (RCOG, 2006). However, the RCOG note some very experienced providers suggest upright maternal positioning (eg. mother kneeling, hands/knees, on a

birthing stool, standing) affords physiological advantages (Banks, 2007; Evans, 2012; Louwen et al., 2012). In addition, service user representatives and mothers telling their own stories have advocated for more choice with regard to VBB and maternal positioning (Berkley, 2006; Thurlow, 2009). These calls for more flexibility resonate with research indicating that women feel a lack of involvement in decision-making around the time of birth when in lithotomy position (Molkenboer et al., 2008), that choice of position is restricted for breech births more than for cephalic births (Toivonen et al., 2014) and that upright positioning may lead to greater maternal satisfaction in childbirth (Thies-Lagergren et al., 2013).

However, while enabling women to make an informed choice about both mode of birth and position of birth is an important ethical principle, professionals are also required to practice within the limits of their own training and competencies (General Medical Council, 2013; NMC, 2012). The achievement of clinical competence in even mainstream lithotomy methods of breech delivery is a real concern given the decline in VBBs over the last few decades (Paterson-Brown and Howell, 2014; Thornton, 2002). The research reported in this manuscript addresses a need to consider the contextualised meaning of competence adequate for the safe support of planned VBBs in contemporary maternity care.

Further objections to the use of upright and active maternal positioning for VBBs revolve around the lack of evidence for the efficacy of this practice (Beech, 2003). Although MRI pelvimetry studies support the theory that

upright and active positioning create greater space in the pelvis (Reitter et al., 2014), only limited comparative safety data is available from practice. One small study has indicated hands and knees maternal positioning significantly reduces severe perineal trauma with no clinical difference in neonatal outcomes compared to classical lithotomy methods (Bogner et al., 2015), but larger studies are needed to confirm these observations. On the other hand, lack of significant comparative data also provides little justification for the continued intervention of lithotomy position in place of maternal choice of birth position, recommended for other normal births (NICE, 2014). Impetus for a cultural shift to include training in active maternal positioning for VBBs will require more definitive safety research. Potential trials exploring the effects of maternal positioning and professional training on outcomes for VBB require the intervention be well defined, including a full description of standards of professional practice and competence; this research seeks to provide that description.

Methods

A Delphi e-survey was used to establish a consensus of opinion among breech-experienced midwives and obstetricians on standards of competence for professionals attending upright VBBs. The purpose of the Delphi method is to develop consensus through a series of sequential questionnaires known as ‘rounds’, interspersed with controlled feedback. Initial data from open-ended questions is coded and amalgamated to formulate statements, which are then put to the panel for evaluation in subsequent rounds. The process continues until a pre-determined level of consensus is achieved, usually over three

rounds. This methodology is particularly useful when, due to a lack of available empirical evidence, a structured group opinion is sought, but convening the desired group is practically difficult. The Delphi method has been applied in many areas of medical and midwifery practice, including analysis of professional characteristics and competencies, developing education programmes, exploring clinical skills, and enabling expansion of the midwifery sphere of practice to include a specialist skill set (Eskes et al., 2014; Michels et al., 2012; Thompson et al., 2011; Walker et al., 2015).

Participants

The perceived expertise of the panel underpins the credibility of the Delphi method, and therefore sampling is a fundamental methodological concern that is described in detail (Cornick, 2006; Hasson and Keeney, 2011). This study prioritised experience in the niche area of practice under consideration. The selection criteria for inclusion on the panel of experienced practitioners was: 1) attendance at a minimum of 20 upright VBBs or at least 10 upright VBBs and a minimum of 40 VBBs overall; and 2) involvement in teaching about VBB. *Upright breech birth* was defined as a vaginal breech birth in which the woman is encouraged to be upright and active throughout her labour, and is able to assume the position of her choice for the birth. The number 20 was chosen based on the career total of 25 VBBs attended by Mary Cronk, MBE, referred to as one of 'the most skilled midwives in the UK' in a published report of a breech birth conference that took place at the RCOG in 2004

(Beech, 2003). The criteria was modified to 10 upright and 40 total to enable the inclusion of more experienced obstetricians on the panel.

Seventy-eight (78) potential panellists were identified initially from a review of recent literature concerning VBB and conference activities (*purposive sampling*). Invites were sent to professionals who had published recent peer-review articles concerning VBB management or observational series, or spoken at conferences concerning VBB. It was often not possible to determine if upright positions were part of these professionals' practices, or to what extent, so this criteria was not applied during these recruitment activities. Each respondent from this initial group was also asked to nominate others in their professional network important to include in the research, and each of the additional forty-five (45) professionals who were not already contacted were invited to participate (*network sampling*). The response rate to these invitations was 46% (56/123). Finally, information about the research was posted on social media sites: Coalition for Breech Birth (Facebook), Breech Birth Network (Facebook), Breech Birth Professionals (LinkedIn), and the breechbirth.org.uk website (*social media sampling*). This resulted in another 23 expressions of interest. Of the initial 79 respondents, 40 did not join the panel due to the eligibility criteria. The recruitment process resulted in:

- purposive sampling: 29 expressions of interest, 22 participants
- network sampling: 4 expressions of interest, 2 participants
- social media sampling: 6 expressions of interest, 4 participants

Delphi surveys in niche areas of professional practice typically involve small panels; approximately 20 participants is considered acceptable, and the inclusion of service users is recommended (Baker et al., 2006; Walker et al., 2015). Multi-professional panels are preferable, to ensure no one professional interest dominates (Hutchings and Raine, 2006), and this study balanced midwifery and obstetric expertise. This study's final panel included 13 obstetricians, 13 midwives and 2 service user representatives from the following countries: Australia, Austria, Brazil, Canada, Germany, Mozambique, New Zealand, United Kingdom, and United States of America. The experience level of the panel is summarised in *Table 1*. Panellists worked clinically in a variety of settings; at least half worked primarily in hospitals, but the panel's experience also included birth centres and home births. In addition, two service user representatives involved in national organisations were invited to participate, to incorporate the perspective of consumers who have acquired expertise by virtue of having experienced the impact of breech pregnancy, and supported others in a similar situation (Powell, 2003).

All participants consented to participate. Each panellist received a list of fellow participants at the end of the second round of the survey [*Table 2 – not included in the blinded review process*], but all responses remained anonymous. Ethical approval was obtained from the Research Ethics Committee of the City University of London School of Health Sciences (Ref: PhD/14-15/13).

Data Collection and Analysis

The process of this Delphi e-survey is depicted in *Figure 1*. The study took place between June 2014 and June 2015. FluidSurveys on-line software was used to administer the surveys. A secure link to the web-based survey was sent directly to each panellist's professional e-mail address, along with a participant information sheet containing a brief literature review. Answers were downloaded collectively on a Microsoft® Excel programme spread sheet containing only the participant's responses and identification code, while personal identities were kept in a separate file. Only the researcher had access to these files, which were stored on a secure university server and encrypted laptop, in accordance with university guidelines. Data analysis was performed using QSR International's NVivo 10 qualitative data analysis Software for Mac. The researcher and two research supervisors had previously published peer-reviewed research using Delphi methods or other qualitative methods.

In line with classic Delphi method (Keeney et al., 2010), the first round of the survey contained mostly open-ended questions, designed to gather rich data (Hasson and Keeney, 2011). These initial 30 questions were grouped under the following topics on separate pages: panellist background, defining 'normal for breech,' defining deviations from 'normal for breech,' identifying core competencies, achieving competence, professional updating, and expert practitioners. Participants were also asked whether standards for achieving competency in breech birth should be the same for doctors and midwives (yes/no). Following agreement in the first round by 83% of the panellists that

they should, the remainder of the research was structured to reflect this premise.

Responses from the first round were amalgamated using a coding process, in which data containing similar opinions were grouped and compared to contrasting views found in other participants' responses. Representative statements were then chosen for each code, using the exact language of the participants wherever possible, and ensuring minority viewpoints were recommended. Where a completed statement was required for a particular code, but could not be obtained verbatim from the data, one was formulated that encapsulated the data under that code. Completeness was checked by highlighting all of the coded data, confirming that all participant responses were reflected in the representative statements.

As a result of this amalgamation process, 164 statements were formed reflecting the panellists' views. Statements were then sorted into 10 organisational categories, suggested by the data: first principles, maternal positioning, birth setting, fetal positions, assessments, assisting, additional skills, basic competence, maintaining proficiency, and expertise. In the second round, participants were presented with the statements grouped under these categories, each allotted a separate page in the survey. Questions were randomised within each page. Participants were asked to rate their level of agreement with each statement on a 5-point Likert scale (5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree). The level of consensus

was pre-set at 70% of respondents indicating agreement with the statement (answer 4 or 5).

Of the original 28 panellists, 82% contributed to the second round of the Delphi survey, with 96% completing every page of the survey (completion rate). The survey did not require a response to every question, and in the second round, 74% of participants rated every statement (completeness rate). Figures for each statement were calculated individually according to the number of responses for that statement (range 20-23). Some additional open-ended questions were included in the second round to seek the wider panel's views on numbers of births required, after participants suggested numbers were a relevant consideration in the first round. Participants had an opportunity to make optional comments on each category page of the survey and were able to navigate between pages of the survey to review and change their answers before submitting. They were also able to return to the survey multiple times in order to complete it. Nine (9) statements in the third round were formed from panellists' comments, clarifying or modifying statements from the previous survey. 82% of the original panel participated in the final round, with 100% completion and completeness rates.

The data analysis and design of each survey round was closely supervised by two experienced researchers, who reviewed the data, coding and completeness. The second round survey was piloted prior to distribution by two health professionals with moderate breech experience, to assess the clarity of the statements arising from the first round data, as well as the

usability and functionality of the electronic Likert questionnaire. In the case of one multiple entry for the second round from the same computer, the second data set was eliminated prior to analysis.

At the conclusion of the study, for the purpose of thorough reporting, the 125 categorised statements were aggregated under the following themes: Standards of Competence; Principles of Practice; Qualities Associated with Expertise. This paper reports the results under the theme, 'Standards of Competence,' as these results have general applicability to all breech births. Other themes will be reported in separate publications. The Standards of Competence theme covers the following 5 organisational categories: assessments, assisting, additional skills, basic competence, maintaining proficiency.

Results

The experienced panellists participating in this Delphi survey research returned a consensus-level agreement on 63 statements under the 'Standards of Competence' theme. These statements are reported in *Tables 3 & 4*.

The panel established a consensus on a list of core skills and attributes for professionals attending VBBs that could be included in training programs or structured reflections to develop competence and confidence [*Table 3*]. The ability to facilitate an informed consent discussion that demonstrates respect for maternal intelligence and autonomy, while being realistic about the inability

to guarantee a perfect outcome, was recognised by the panel as a unique clinical skill requiring training and practice. This statement was formulated from the response of a service user representative, and achieved the highest level of consensus of any statement in this research, illustrating the value of including consumers in research of this type.

The manoeuvres described by the panel to assist upright breech births resemble in principle those used to assist lithotomy births, such as Mauriceau (manual flexing of the head, following the sacral curve), Løvset (rotational manoeuvres for the arms) and suprapubic pressure. The panel also indicated consensus-level support for new manoeuvres, specific to upright births attended from the dorsal aspect of the woman, involving subclavicular pressure on the fetal torso to achieve head flexion, as described by Evans (Evans, 2012). Some of the identified skills have not previously been articulated in obstetric literature, most of which focus only on lithotomy births requiring assistance. The recommended skill set is outlined in *Table 3.*

Despite having attended on average almost as many classical lithotomy VBBs as upright VBBs, the panel suggested that 'physiological breech birth' should be the standard of basic competence for all professionals, including the use of active maternal positioning and teaching the facilitation of VBB as a 'normal' skill rather than an emergency. This departs significantly from obstetric paradigms asserting that spontaneous breech deliveries occur mostly in preterm births and are not recommended at term (PROMPT, 2012). The panel recommended assessment skills such as understanding the optimal

mechanisms and progress specific to VBBs, acknowledging the ability to recognise the need (or lack of need) for intervention as equally important to the ability to perform manoeuvres. In line with their overall valuing of an optimal physiology approach, the panel also returned a consensus that those attending VBBs should be competent to initiate neonatal resuscitation (transition to life) with the infant attached to the umbilical cord.

Although VBBs are typically associated with the liberal use of technological assessments, such as detailed ultrasound of fetal biometrics and position, and electronic fetal monitoring (RCOG, 2006), the panel's consensus statements revealed reservations about the assumed benefit and awareness of the limitations of these technologies. Instead, the results emphasized the importance of well-developed clinical skills, such as palpation and close observation of labour and fetal wellbeing.

The establishment of minimal requirements concerning the number of births required to achieve and maintain competence proved highly controversial despite a consensus-level agreement that such a number would be useful [*Table 4*]. Some panellists declined to return an answer, and many explained that competence is both individual- and context-dependent. Individuals acquire skills and knowledge at different rates, and 35% of the panellists expressed concern that any requirement to attend certain numbers of breech births with a mentor or annually would be difficult to achieve, entirely eradicating the practice of VBB in many areas. Consequently, the panel's highest level of agreement was reached around the principle that while a

minimal number may be useful as a guideline, more emphasis should be placed on the individual practitioner's ability to adapt and acquire the necessary skills to support VBBs. Rather than asking the panel to validate a single number, the guideline numbers have been reported as a range bounded by the mode (most common answer) and median (mid-range answer) of all responses. For achieving competence, the data suggested attendance at 10-13 VBBs with a mentor. For maintaining proficiency, the data suggested attendance at 3-6 VBBs per year.

Given the general depletion of VBB skills and opportunities, one of the hospital-based panel members suggested a 'specialist' breech team in every labour setting with at least one member on each shift (or on-call) would be advantageous, and this statement met consensus-level agreement. However, the panel agreed the role of 'specialists' is to mentor and support breech skills development throughout the entire maternity care team, rather than functioning as experts of an exclusive skills set.

Discussion

The panel of experienced practitioners in this research returned a strong consensus about the need for balanced counselling. This resonates with recent research from Catling *et al* (2015) concerning the importance of discussing risk in a calm manner, in light of current evidence and women's own preferences and values. Kok *et al*'s (2008) study of the preferences of women and their partners indicated that when such a balance is achieved in

counselling about breech childbirth options, approximately 35% prefer to attempt a VBB, yet this figure is far below the percentage of women planning a VBB in most Western settings. Further research concerning how women's birth choices are associated with the skill and experience levels of professionals responsible for their care may shed light on this disparity.

In line with this research panel, Sartwelle and Johnston (2015) have raised concerns about the role of electronic fetal monitoring in modern obstetric care. Although the use of continuous monitoring was not associated with higher or lower perinatal risk in a large randomised controlled trial (Su et al., 2003), its use is almost universally recommended for breech labours, with little research demonstrating the potential benefits or risks. Similarly, although most obstetric guidelines refer to strict selection criteria, usually involving ultrasound assessment, as a means of reducing the risk of VBB, recent population-level research in the Netherlands indicates that stricter selection criteria have not improved outcomes for breech infants born vaginally (Vlemmix et al., 2014). Given the association between experience and outcome in VBB, overly restrictive selection criteria may potentially be counter-productive, and this warrants further investigation.

The panel's consensus that professionals attending physiological VBBs should be able to initiate resuscitation with the umbilical cord still attached is also in line with emerging trends in neonatal management. Gruneberg and Crozier (2015) suggest that delayed cord clamping may be just as important if not more to the potentially compromised infant as the UK Resuscitation

Council and national intrapartum guidance suggest it is for uncompromised infants (NICE, 2014; Resuscitation Council (UK), 2010).

The collection of activities agreed by the panel as appropriate education, training and updating resembles a deliberate practice approach to the acquisition of expertise (Ericsson, 2008). In such an approach, active engagement in the deliberate and repeated practice of particular tasks, immediate feedback, and time for problem-solving and evaluation have been shown to be more effective than the length of experience traditionally associated with achieving professional expertise. Other research has demonstrated the utility of videos in enabling practitioners to reflect on their own performance of complex clinical skills and clarify details which can be used to train others (Bahl et al., 2009). The use of videos as recommended by this panel may enable practitioners to develop complex pattern recognition associated with experience of real-life events, despite the paucity of actual VBBs available for most professionals to attend.

Given the rarity of VBBs, acquiring clinical experience in VBB requires significant determination, as suggested by the panel. In the largest randomised controlled trial concerning VBB, the only intervention associated with a reduction in risk when a VBB was planned, was the presence of an experienced clinician, defined as one ‘who judged him or herself to be skilled and experienced at vaginal breech delivery, confirmed by the Head of Department,’ rather than a licensed obstetrician or a clinician with over 10 or 20 years experience (Su et al., 2003). The most effective category included

midwives and trainees, and placed emphasis on confidence and self-selection rather than a particular qualification or length of experience. The proposition that self-selection and deliberate development of VBB attendants could influence outcomes more than antenatal predictive criteria deserves more exploration.

Finally, the panel's suggestion that specialist teams be organised to attend planned VBBs wherever possible, supporting skill development among the entire team, is a practical strategy that has been suggested by others (Daviss et al., 2010; Maier et al., 2011). Such teams enable a small number of practitioners to develop significant levels of experience in support of a safe service. Some institutions have developed such multi-disciplinary breech teams (Dresner-Barnes and Bodle, 2014; Marko et al., 2015), increasing the likelihood that VBBs are attended by professionals with recent experience, as well as the panel-recommended ability and willingness to closely observe these labours. Given the proven safety benefit of experienced attendance (Su et al., 2003), such strategies may be protective for women, neonates, professionals and organisations. The impact of breech teams warrants further investigation.

The results of this Delphi study should be interpreted with caution. These results reflect consensus of one particular panel, but do not necessarily provide the 'right' answer, and a different panel could produce different results (Baker et al., 2006). Similarly, the results of this Delphi study represent one experienced panel's collective opinion on how VBB may be made safer, but

they do not provide evidence that the strategies advocated are safe or effective. Additionally, the use of 70% agreement as a measure of consensus leaves room for a statement to be included within the results without the agreement of a portion of the panel. Therefore, the exact percentage of agreement has been reported, along with the mean from the Likert scale and the standard deviation, in an effort to be transparent. Some of the divergences indicate areas where further exploration using different methods may be fruitful.

While data obtained from randomised controlled trials to establish the most effective strategies and interventions would be ideal, due to the rarity of VBBs such data is impractical to obtain. Current recommended techniques to assist VBBs are founded on tradition and established professional opinion, rather than experimental evidence (Prusova et al., 2014). This Delphi study makes the foundation on consensus opinion explicit, while avoiding the bias that can occur in face-to-face consensus meetings, resulting from disparities in power and strength of character (Mead and Moseley, 2001). The use of an e-survey also enables participation of a broader range of practitioners than would otherwise be feasible, ensuring membership is not confined to those who have time and funding to travel to a consensus meeting.

One of the strengths of this research is the significant experience level reported, considerably higher than averages reported in Western countries (Carcopino et al., 2007; Chinnock and Robson, 2007). Dhingra and Raffi (2010) reported that after 4 or 5 years of training only 63% of UK obstetric

speciality trainees had attended more than 10 vaginal breech deliveries. The participants in this study reported significant levels of experience in both lithotomy and upright methods of VBB, enabling a comparative perspective unavailable to clinicians who have no familiarity with using upright positions for VBB. Their activities teaching and mentoring others, a requirement for panel membership, give them particular insight into their own learning process as well as that of other professionals. The quantified description of birth numbers makes transparent the meaning of 'experience' among this panel, who had all demonstrated their ability to sustain a practice inclusive of VBB in a contemporary context. Although individual numbers have not been verified, the consent form and second round of the survey made clear that participants' names would be published with the results.

In conclusion, the practice of facilitating VBBs with the woman in an upright position of her choice departs from practice norms familiar to most practitioners. The results of this Delphi survey around the theme of 'Standards of Competence' suggest a structure for training programmes aiming to develop professional competence and confidence in physiological VBB as a normal practice, but many are relevant to VBB in general. Such training programmes could enable professionals offering a VBB service to provide credible evidence of basic competence on an individual level, assist maternity services to strategically plan clinically appropriate and woman-centred service provision, and guide future research into the efficacy of these techniques. The panel's guidelines for minimum numbers of births to achieve competence and maintain proficiency will be difficult to achieve for a majority of practitioners in

most settings. Where attendance of a clinician meeting these standards cannot be provided, professionals can use this research to provide women with a framework for understanding and evaluating the level of experience available, in order to facilitate informed decision-making.

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Table 1. Self-reported experience levels of panel members.

	Years of experience	Total breech births	Breech births in upright positions
All	**693**	**3511**	**2030**
range	5-60	20-400	8-400
mean	27	135	78
median	25	100	30
Midwives	**335**	**1116**	**904**
range	5-50	20-400	10-400
mean	27	86	70
median	25	50	25
Obstetricians	**338**	**2395**	**1126**
range	12-60	40-400	8-225
mean	25	184	87
median	22	150	60
Two service user representatives were also included on the panel.			

Table 2. Delphi Panellists

Prof Melania Amorim
Professor of Obstetrics and Gynaecology
ISEA and IMIP
Campina Grande and Recife, Brazil

Dr Maggie Banks
Home Birth Midwife, Midwifery Educator
New Zealand

Dr Andrew Bisits, FRANZCOG
Director of Obstetrics, Royal Hospital for Women
Randwick, NSW, Australia

Dr Gerhard Bogner
Senior Consultant and Acting Manager for the Department of Obstetric and Gynecology, Paracelsus Medical University, Salzburg, Austria

Cynthia Caillagh
Traditional Midwife, Certified Professional Midwife (NARM), Licensed Midwife
Wisconsin, USA

Mary Cooper
Senior Community Midwife
Ohio, USA

Mary Cronk, MBE
Retired Independent Midwife
UK

Prof Hannah Dahlen
Midwife in Private Practice
Professor of Midwifery, University of Western Sydney
Australia

Jane Evans
Independent Midwife
UK

Dr Annette Fineberg
Obstetrician, Sutter Davis Hospital
California, USA

Dr Stuart Fischbein, FACOG
Home birth obstetrician
California, USA

Julie Frohlich
Consultant Midwife, St Thomas' Hospital
London, UK

Diane Goslin
Certified Professional Midwife
Pennsylvania, USA

Robin Guy
Consumer Advocate; Co-founder, Coalition for Breech Birth
Ottawa, Canada

Dr Michael Hall, MD, FACOG
Assistant Clinical Professor
Swedish Hospital and University of Colorado Health Services Centre, Denver
Colorado, USA

Dr Dennis Hartung, MD, OB/GYN, FACOG
Hudson Hospital
Wisconsin, USA

Sherri Holley
Certified Professional Midwife
Oregon, USA

Dr Andrew Kotaska, MD, FRCSC
Clinical Director of Obstetrics and Gynecology, Stanton Territorial Hospital
Yellowknife, Canada

Dr Michael Krause, MD
Obstetrician, Klinikum Nuremberg
Nuremberg, Germany

Dr Jorge Kuhn, MD, OB
São Paulo, Brasil

Dr Katharina Lüdemann
Obstetrician, St. Josef-Stift
Delmenhorst, Germany

Dr Michel Odent, MD
Obstetrician, Founder of Primal Health Research Centre
London, UK

Whitney Pinger
Certified Nurse Midwife, Associate Clinical Professor
Diector of Midwifery Services, George Washington Medical Faculty Associates
Washington DC, USA

Dr Anke Reitter, FRCOG
Obstetrician and Gynecologist, Fetal Maternal Medicine Specialist
Frankfurt, Germany

Margarett Scott
Certified Professional Midwife
Oklahoma, USA

Dr Rhonda Tombros
Co-Founder, Breech Birth Australia and New Zealand Consumer Representative

Gail Tully
Certified Professional Midwife
Minnesota, USA

Stephanie Williams
Clinical Director and Certified Professional Midwife
Mozambique

Table 3. *Consensus statements on skills for professionals attending upright vaginal breech births* – Percentage of panel in agreement, Likert mean and standard deviation (SD)

Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree

Statement	*%*	*Mean*	*SD*
Assessment Skills – *Breech care providers should develop the following assessment skills:*			
Assessment of optimal and delayed progress specific to breech labours	100	4.73	0.46
Ability to closely assess fetal well-being	100	4.68	0.48
Ability to closely observe mother-baby unit	100	4.59	0.50
Identification of optimal mechanisms	95	4.45	0.60
Perform a detailed clinical assessment using palpation	86	4.50	0.86
Determine whether baby is coming freely or is stuck by the signs of the baby part that is visible	86	4.18	0.80
Identification of level of pelvis where head entrapment has occurred	75	4.05	0.76
Visual assessment of umbilical cord	73	4.05	1.09
Use of Technology			
Practitioners should have an awareness of the limitations of CTG monitoring in the second stage of labour.	91	4.27	0.63
Ultrasound is not necessary to the safe support of breech births, but can occasionally be useful.	73	3.82	1.14
Assisting and Manoeuvres – *Health professionals attending upright breech births should be competent to assist in the following ways:*			
Rotational manoeuvres for the arms	86	4.23	1.02
Moving baby's body to mum's body, so that baby's body follows the curve of the woman's sacrum	86	4.05	0.95
Sweeping down the arms	82	4.23	0.87
Suprapubic pressure	82	3.91	0.92
Assisting rotation of the fetal back to anterior (when the mechanism has deviated from normal)	77	4.00	0.69
Manual flexing of the head	73	4.05	1.09
Sub-clavicular pressure and bringing the shoulders forward to flex an extended head	73	3.95	1.05
Pressure in the sub-clavicular space, triggering the head to flex	73	3.91	1.02
Additional Core Skills – *The following should also be considered core skills and/or attributes for health professionals attending breech births:*			
Facilitating an informed consent discussion that demonstrates respect for maternal intelligence and autonomy, while being realistic about the inability to guarantee a perfect outcome	100	5.00	0.00
Patience	100	4.91	0.29
Competence and confidence supporting physiological birth whether the baby is breech or cephalic	100	4.91	0.29
Effective communication	100	4.91	0.29
Willingness and ability to observe labours closely and carefully	100	4.86	0.35
Remaining calm in a stressful environment	100	4.86	0.35
Good inter-professional team working	100	4.82	0.39
Inspiring confidence in women	100	4.82	0.39
Avoiding interference unless indicated	100	4.77	0.40
Trust in birth	100	4.73	0.46
Escalating and acting appropriately in an emergency	100	4.73	0.46
Manage the distress of others (birth supporters, family members, health professionals)	96	4.64	0.58
Neonatal resuscitation (transition to life) while attached to the umbilical cord	91	4.64	0.66
Assisting births without medications	91	4.59	0.67
Determination	77	4.23	1.02
Basic and Location-Specific Competencies			
Providers working in out-of-hospital settings should have a high level of competence in neonatal resuscitation.	100	4.59	0.50
Doctors should also be competent at aspects of medical and surgical management of breech births, eg. the use of oxytocin, caesarean section.	91	4.18	0.59
The ability to facilitate a physiological breech birth should be the standard of competence for all professionals.	82	4.00	1.11

Table 4. *Consensus statements on training for professionals attending upright vaginal breech births* – Percentage of panel in agreement, Likert mean and standard deviation (SD)

Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree

Statement	*%*	*Mean*	*SD*
Education and Training – *The following should be included in breech education and training:*			
Hands-on simulation (skills and drills)	100	4.82	0.39
Regular opportunities to discuss experiences with peers and mentors	100	4.77	0.43
Watching breech birth videos	100	4.77	0.43
Theoretical instruction in anatomy, physiology, mechanisms, and manoeuvres	95	4.68	0.89
Mentorship and supervision in clinical settings	91	4.68	0.65
Evidence of Basic Competence			
Direct observation by a senior mentor	95	4.27	0.88
Practical exam (simulation assessment)	91	4.05	0.84
Evaluation of outcomes following training	81	4.05	0.80
Attending a minimum number of births with a mentor	77	4.05	1.00
Numbers Associated with a Mentorship Period (Acquiring Competence)			
Range *(mode-median):* 10-13			
While a minimum number may be useful as a guideline, more emphasis should be placed on the individual practitioner's ability to adapt and acquire the necessary skills to support breech births.	95	4.59	0.59
Professional Updating Activities			
Practical session on optimal mechanisms and manoeuvres to help	100	4.55	0.51
Regular opportunities to discuss experiences with peers and mentors	100	4.55	0.51
Viewing and discussing breech videos	100	4.45	0.51
Scenarios with hands-on simulation	95	4.55	0.60
Actively supporting mothers to birth breech babies on a regular basis	95	4.50	0.60
Update on the latest research, projects, and theories	95	4.27	0.55
Attending breech births with other practitioners	91	4.45	0.67
Team training activities	91	4.32	0.65
Attending conferences	77	4.00	0.69
Evidence of On-going Proficiency			
On-going evaluation of outcomes	86	4.09	0.61
A skills exam, much like neonatal resuscitation	77	3.91	0.97
Numbers Associated with Skill Maintenance			
Range *(mode-median):* 3-6 per year			
General Principles			
Every midwife or doctor should be prepared for a breech baby at any time and have regular practice/simulation and discussion in regard to breech birth.	100	4.86	0.35
Breech should be taught as a 'normal' skill rather than an emergency.	100	4.77	0.43
Hospitals and midwifery communities should identify those individuals who are competent with breech and 'apprentice' others to them in order to bring skills up across the community.	100	4.50	0.51
The role of 'specialists' is to mentor and support breech skill development throughout the entire maternity care team.	90	4.33	0.80
Health professionals should share their training background openly with women who seek care and support for a breech birth, with reference to standards set out by their professional certifying body.	87	4.43	0.84
A 'specialist' vaginal breech team in every labour setting with at least one member on each shift (or on-call) would be advantageous.	86	4.36	0.85